

Amendments to the Specification:

Please replace paragraph 3 on page 4 with the following amended paragraph:

The address from adder 112 and values from X and Y registers 108 and 110 are applied as inputs to multiplexor 114. An instruction may be used to determine whether the address ($x + y + \text{offset}$), or x or y values should be selected for output by processor or other device. In the 1D mode, X or Y may be selected and used exclusively. The output from multiplexor ~~112~~ 114 is an index/address to memory 104. In another embodiment, the processor reads the value generated without relying on data stored in memory. In particular, the address can be used as a coefficient with a sequence.

Please replace on page 6, last row of second column:

This mode allows the slip register to be applied after ~~Ystep~~ Xstop is reached. This mode may be used for JPEG 2000 scanning.

Please insert on page 7, after Table I:

Y count after X stop mode: In this mode, the Y counter is held constant until the X stop value has been reached and the X length is satisfied. Then in the next count sequence, the Y count will increment by the Y step value as long as the Y stop and length has not been reached. In this mode, slip is not used just step, start, stop and length. Note that in this mode the length has to be satisfied as well and the stop value. It would be possible to hit the stop value many times until the length value is reached, and then the y counter would increment.

X count after Y stop mode: Same as Y count after X stop mode except that the X counter is held constant until the Y stop value has been reached and after the Y length has finished.

Slip after length mode: In this mode, the counter will slip after a determined length (number of increments) has occurred. The slip value is then added to the beginning of the count sequence until the length again has occurred. For example: start = 1, step = 1, slip = 5 and

length = 3, then the count sequence would be (1, 2, 3) then adding slip of 5 (6, 7, 8) then adding slip of 5 (11, 12, 13) and so on.

Slip after stop mode: The value of the slip will be added to the counter (X or Y) when the stop limit value is reached in (Y or X) respectively. Note that there is no Xslip after Xstop mode because after adding the slip value to X after an X stop value has been reached, the X counter may never reach the Xstop value again. So only Xslip after Ystop and Yslip after Xstop is defined.

Slip: Slip is different than step. The step is the count value as the counter changes. For example, with a step of 1, start of 0, length of 6, slip of 0 and slip after length mode on, the counter will take the following values: (0, 1, 2, 3, 4, 5) then (0, 1, 2, 3, 4, 5) and on and on. If the step is 2, start of 0, length of 6 and slip of 0, the counter will take the following values: (0, 2, 4, 6, 8, 10) then (0, 2, 4, 6, 8, 10) and on and on. If a slip value of 1 is added, the counter will count as follows: With a step of 1, start of 0, length of 6 and a slip of 1, the counter will take the following values: (0, 1, 2, 3, 4, 5) then (1, 2, 3, 4, 5, 6) and on and on. If the step is 2, start of 0, length of 6 and slip of 2, the counter will take the following values: (0, 2, 4, 6, 8, 10) then (2, 4, 6, 8, 10, 12) and so on. The slip value is an additional amount added to the counter after some condition has occurred such as length of counts being reached.